REMARKS

A. Introduction

Applicant would like to thank the Examiner for indicating that Claims 18-24 are allowed. Applicant would also like to thank the Examiner for the courtesy extended during the interview conducted on January 6, 2009. The interview clarified several issues and enabled Applicant to better focus the present Response to expedite allowance of the entirety of the present application.

Applicant respectfully requests reconsideration and allowance of the claims in this application that were rejected in the latest Office action, Claims 1, 2, 5-10 and 13-16. Applicant respectfully disagrees with the Examiner's reasons for rejecting these claims, as detailed below. Applicant submits that Claims 1, 2, 5-10 and 13-16 are in condition for allowance, just as Claims 18-24 are. Applicant, therefore, earnestly requests such action. Below, Applicant addresses each of the Examiner's reasons for rejection.

B. All Claims are Patentable Over the Cited References

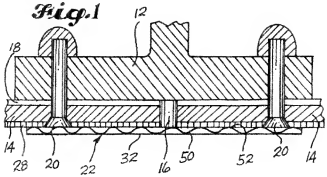
Kuras

The Examiner rejected Claims 1, 2, 5, 7-10, 13, 15 and 16 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,698,316 to Kuras et al. ("Kuras"). Applicant respectfully submits that these claims are allowable over Kuras without the need for amendment.

Claims 1, 2, 5, 7 and 8

Claim 1 recites apparatus for protecting a composite-body aircraft against damage from lightning strikes. The apparatus comprises an aircraft body including a plurality of composite panels. A first plurality of electrically conductive splice plates extend along junctions between adjacent ones of the composite panels at respective edges of the adjacent composite panels. A second plurality of electrically conductive splice plates extend along the junctions between adjacent ones of the composite panels at respective edges of the adjacent composite panels. The first plurality of electrically conductive splice plates abut exterior surfaces of the composite panels, and the second plurality of electrically conductive splice plates abut interior surfaces of the composite panels. The apparatus further comprises a plurality of electrically conductive straps, and a plurality of electrically conductive fasteners. The straps and the fasteners mechanically and electrically couple adjacent ends of the splice plates to one another such that the splice plates form a continuous, electrically conductive grid about the aircraft body.

By contrast, Kuras discloses an electrically conductive bridge formed over a non-conductive joint between two or more adjacent electrically conductive panels. With reference to Figure 1 of Kuras, two composite panels 14 are positioned adjacent one another with a gap 16 between. Electromagnetic shielding material 28 overlies the composite panels. The electromagnetic shielding material comprises a copper mesh. An electrically conductive bridge 22 overlies the junction of the composite panels. The bridge comprises heavier weight expanded copper mesh 32. See Kuras column 5, line 63 through column 6, line 20.



Kuras does not teach or suggest at least a first plurality of electrically conductive splice plates extending along junctions between adjacent composite panels at respective edges of the adjacent composite panels, and a second plurality of electrically conductive splice plates extending along the junctions between adjacent composite panels at respective edges of the adjacent composite panels, wherein the first plurality of electrically conductive splice plates abut exterior surfaces of the composite panels, and the second plurality of electrically conductive splice plates abut interior surfaces of the composite panels. Rather, Kuras discloses that an electrically isolating fiberglass layer 18 abuts interior surfaces of the composite panels 14. Kuras, 4:55-5:3, Fig. 1.[1]

The Examiner asserts that it would have been obvious to one of skill in the art to have modified Kuras by replacing the fiberglass layer 18 with an electrically conductive material. Office Action, pg. 3. Applicant respectfully disagrees.

At column 4, lines 55-67, Kuras explains that the frame member 12 is made of aluminum and the skin panels 14 are graphite epoxy. Kuras further explains that, "[d]ue to the galvanic incompatibility of aluminum and graphite, these materials must be electrically isolated from each

[1] References to Kuras herein follow the format of "column:line numbers." For example, the reference to 4:55-5:3 refers to Kuras at column 4, line 55 through column 5, line 3.

other in the event electrolytes (such as salt water) are present. Sealants and paint alone cannot sufficiently assure the exclusion of electrolytes from within these structurally critical joints. Therefore, it is necessary to use additional means to electrically isolate the graphite epoxy skins 14 from the aluminum frames 12." At the top of column 5, Kuras goes on to explain his solution to the problem of the galvanic incompatibility of aluminum and graphite. His solution is to "incorporate[e] a thin ply of fiber glass 18 (FIG. 1) into the composite lay up on the frame side of the skin panels."

As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. Those factual inquiries include ascertaining the differences between the claimed invention and the prior art. M.P.E.P. § 2141. To ascertain the differences between the claimed invention and the prior art, "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)." M.P.E.P. § 2141.02(VI.). Further, in order to establish a prima facie case of obviousness, the Examiner's proposed modification of a prior art reference cannot render the prior art unsatisfactory for its intended purpose. "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)." M.P.E.P. § 2143.01. Finally, "a prior art reference that 'teaches away' from the claimed invention is a significant factor to be considered in determining obviousness." M.P.E.P. § 2145(X.)(D.)(1.).

In light of the above, it is clear that the Examiner must consider the passages of Kuras outlined above in the obviousness determination. These passages not only demonstrate that the Examiner's proposed modification of Kuras would render the Kuras apparatus unsatisfactory for its intended purpose, but they provide a clear teaching away from substituting an electrically conductive material for the fiberglass layer 18. For these reasons, the Examiner's obviousness rationale is not supported.

Since Kuras the Examiner's proposed modification of Kuras would render the Kuras apparatus unsatisfactory for its intended purpose, and since Kuras provides a clear teaching away

from substituting an electrically conductive material for the fiberglass layer 18, Applicant respectfully submits that independent Claim 1 is allowable over Kuras. Dependent Claims 2, 5, 7 and 8, which include the features of independent Claim 1, recite additional features of particular advantage and utility. Moreover, these claims are allowable for substantially the same reasons presented above. Kuras does not teach or suggest all of the limitations of Claim 1, let alone the unique combinations of features recited by Claims 2, 5, 7 and 8. Accordingly, Applicant respectfully requests that the Examiner withdraw these rejections.

Claims 9, 10, 13, 15 and 16

Claim 9 recites a method for protecting a composite-body aircraft against damage from lightning strikes. The method comprises coupling adjacent composite panels on an aircraft body to one another at respective edges of the adjacent composite panels using electrically conductive splice plates, electrically conductive straps and electrically conductive fasteners. The straps and the fasteners mechanically and electrically couple adjacent ends of the splice plates to one another such that the splice plates form a continuous, electrically conductive grid about the aircraft body. A first plurality of the electrically conductive splice plates extend along junctions between the adjacent composite panels and abut exterior surfaces of the composite panels. A second plurality of the electrically conductive splice plates extend along the junctions between the adjacent composite panels and abut interior surfaces of the composite panels.

Similarly to Claim 1, Claim 9 recites that the second plurality of splice plates is electrically conductive. Accordingly, Applicant respectfully submits that Claim 9 is allowable over Kuras for substantially the same reasons as Claim 1 recited above. Dependent Claims 10, 13, 15 and 16, which include the features of independent Claim 9, recite additional features of particular advantage and utility. Moreover, these claims are allowable for substantially the same reasons presented above. Kuras does not teach or suggest all of the limitations of Claim 9, let alone the unique combinations of features recited by Claims 10, 13, 15 and 16. Accordingly, Applicant respectfully requests that the Examiner withdraw these rejections.

Kuras in view of Sankrithi

The Examiner rejected Claims 6 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Kuras in view of U.S. Patent No. 6,666,406 to Sankrithi et al. ("Sankrithi"). Claim 6 depends from Claim 1, and therefore includes all of the limitations of Claim 1. Claim 14 depends from Claim 9, and therefore includes all of the limitations of Claim 9. Claims 1 and 9

are allowable over Kuras for the reasons provided above. Claims 1 and 9 are also allowable over Kuras in view of Sankrithi, because Sankrithi neither teaches nor suggests the limitations of Claims 1 and 9 that are lacking in Kuras. Accordingly, Claims 6 and 14 are allowable for at least the same reasons provided above with respect to Claims 1 and 9, and Applicant respectfully requests that the Examiner withdraw these rejections.

CONCLUSION

For the reasons presented above, Applicant respectfully submits that this application is in condition for allowance. If there is any further hindrance to allowance of the pending claims, Applicant invites the Examiner to contact the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1159.

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Respectfully submitted,

Scott Loras Murray
Reg. No.: 53,360
Attorney for Applicant
Tel.: (949) 955-1920